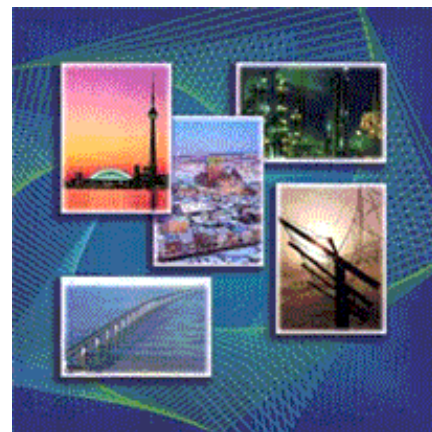


Canadian Economic Observer

A National Accounts perspective on recent financial events

by Philip Cross, Éric Boulay, Joe Wilkinson and Allan Tomas*



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| .. | not available for a specific reference period |
| ... | not applicable |
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| 0 ^s | value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded |
| ^p | preliminary |
| ^r | revised |
| x | suppressed to meet the confidentiality requirements of the <i>Statistics Act</i> |
| ^E | use with caution |
| F | too unreliable to be published |
| * | significantly different from reference category ($p < 0.05$) |

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Since the onset of unsettled global credit market conditions in August 2007 and the marked deterioration of financial markets worldwide in September 2008, interest in financial and economic developments in Canada has grown. Some of these data in the National Accounts are familiar to users, notably GDP and its sectoral accounts on incomes, spending and savings. Less well known is the broad array of data on balance sheets, financial flows and Canada's international investments. These integrated financial data allow analysts to track sectoral changes in net lending, borrowing and net worth. This article attempts to show how these financial data can shed some light on changes in financial markets and the economy over the past year and a half.

The paper first looks at longer-term trends in financial behaviour, especially those that put some Canadians at a higher risk from the fall-out of adverse developments in financial markets. It then examines the broad impact of the turmoil in financial markets after August 2007, especially the significant worsening of market conditions after mid-September 2008. Comparing with US financial developments also helps show why Canadians have been less severely affected.

There are limitations to the type of macro-analysis provided by the Accounts. As noted in a recent NBER paper, ¹ these sectoral data do not reveal company-specific financial risks that may result from over-leveraging or a mis-match between the term structure of assets and liabilities. The failure of individual firms, notably Bear Stearns and Lehman Brothers, were pivotal in the recent crisis, but could not have been foreseen in US financial flows data. Nor do these data show how the risk of investment in mortgage-backed securities was diffused to investors around the world, which proved important to the speed and severity with which the contagion spread after August 2007.

The setting

The events in financial markets in the past two years occurred against the backdrop of changes in financial behaviour over the previous decade or more. In Canada, the patterns of sectoral net lending or borrowing changed, notably as firms and governments ran large financial surpluses while households borrowed more. Some of these trends reflected a shift in household behaviour to more investment in housing and financial assets (often debt-financed). Households and investors also increased foreign investments through their holdings of mutual funds and pension assets.

The National Balance Sheet Accounts show that household balance sheets changed markedly in the past decade. The debt of the personal sector increased from 68% of GDP in 2000 to over 84% late in 2008 (Figure 1). Much of this rising debt was driven by spending on housing in response to low mortgage rates, reduced down payments and longer mortgage terms, and increased funds available to borrowers through securitization.

Securitization refers to the process by which mortgages are sold to investors; the originator of a mortgage loan sells this loan to another institution, which may then package several mortgages together and sell the payments streams to investors. As a separate step, these investors can use these payments rights to back other securities they issue (as occurred for some asset-backed commercial paper). In the US, with its more fragmented banking system, initial mortgage lenders often sold mortgage loans to larger financial firms before securitization occurred.

In Canada, securitized mortgages rose from 5% of all mortgages in 1997 to 20% in early 2007 and 28.6% late in 2008. The growth of securitized mortgages was the equivalent of about half of the increase in property values between 2003 and 2008. The growth of securitized mortgages in Canada was much slower than in the US, where by the mid-1990s they already accounted for over half of all mortgages. [2](#)

There is nothing inherently risky about securitized mortgages. However, the increased bundling of US sub-prime mortgages into mortgage-backed securities (MBS) eroded investor confidence after the default rate on these sub-prime mortgages began to rise in 2007. Sub-prime mortgages were much less common in Canada. This may be why the MBS market continued to expand in Canada into 2008, while it levelled off and declined recently in the US. Other structural differences in mortgage lending led to fewer defaults or losses in Canada than in the US. Lenders can repossess a home in Canada more easily than in many American states. And mortgages provided by chartered banks that are more than 80% of the value of the home must be insured with the CMHC. [3](#)

Households also altered the asset side of their balance sheet over the last two decades. Households held an increasing share of their assets in real estate and the stock market (up from a combined 63% in 1991 to 77% in 2008), and less in more stable assets like short-term deposits and bonds (which fell from 24% to 14%). This left household wealth more exposed to sudden changes in the price of housing and stocks, while personal savings had a smaller role in household net worth after 2002.

While households in Canada increased their borrowing, governments and corporations were lowering their debt. Government debt liabilities relative to GDP fell from a peak of 94.6% in the mid-1990s to 52.4% by mid-2008, led by the federal government (Figure 3). The improvement in government finances was even more marked if the increased assets of social security funds controlled by governments were included: net debt fell sharply after 2000 to 35.5% of GDP, partly reflecting the overhaul of the CPP/QPP that resulted in higher contribution rates. [4](#)

Non-financial corporations trimmed their ratio of debt to GDP from 54% in 1990 to 46% in 2008. Firms achieved this by using record profits to pay down debt early this decade, especially a drop of \$10.2 billion for longer term bonds between 2002 and 2006 (bond issues rebounded by 14% during 2008). The improvement in the corporate sector balance sheet was reflected in other measures—notably the ratio of debt to equity, which fell to a record low level.

The trends in sectoral lending and borrowing in the US were much different than in Canada. Non-residents were the only consistent source of net lending in the US from 2003 to 2007. Governments in the US were net borrowers throughout this period, while they were net lenders in Canada. Firms in the US alternated between small amounts of net lending and borrowing, while Canadian firms posted record high surpluses until late in 2008. And households in the US borrowed much more than in Canada. [5](#) The lower reliance on debt of all sectors in Canada proved important when credit conditions tightened in some markets after August 2007.

The national savings rate highlights the differences in overall financial behaviour in Canada and the US after 2000 (Figure 4). In Canada, the national savings rate rose to over 12%, as increased savings by corporations and governments offset a slight decline for personal savings. In the US, the national savings rate hovered between 1% and 2% starting in 2002, before turning negative in 2008: low personal savings

rates (below 1% in recent years) were not offset by more savings by governments or firms. This left borrowing abroad as the main source of funds in the US, consistent with record current account deficits. [6](#)

Risk factors

Several of these decade-long changes in behaviour raised the exposure of some Canadians to more risk. In particular, the increasing reliance of households on borrowing became problematic after some credit markets seized up in August 2007. And the growing proportion of Canadian investments outside Canada increased their exposure to the risk of rapid fluctuations in the Canadian dollar.

When interest rates fell in the early 2000s and remained near their lowest level in a generation, households invested more in real estate. As a result, personal-sector equity in real estate rose to over 70%. Still, Canada avoided the excesses of the US, where housing debt grew faster than home values, reducing net homeowner equity in real estate from its peak in 2000 (a trend sharply reinforced by the drop in house prices after 2006).

While households in Canada took on increasing amounts of debt, the cost of servicing debt did not rise proportionally. Debt service payments (which include the portion related to the cost of interest but not the principal) as a share of personal disposable income edged up from 7% to 8% between 2003 and 2007. By comparison, this debt service ratio hit a high of 10.7% in the early 1990s, and rarely went below 8% during that decade. Low interest rates capped the burden of servicing debt in recent years, and even reduced it slightly in 2008 and early 2009 when interest rates fell to record lows (users should be aware that US data on debt service published by the Fed include payments on both interest and principal, and therefore are not comparable with Canadian data).

Canada's exposure to foreign financial markets has increased, according to data on Canada's International Investment Position. Portfolio assets held abroad nearly doubled after 2002 to \$700 billion, mostly reflecting growing investment abroad in stocks and bonds. Much of these increases reflected the gradual loosening of restrictions on the foreign content of registered pension plans, culminating in their elimination in 2005. The growing proportion of household assets exposed to equity markets increased their potential risk. As well, substantially higher holdings of foreign securities increased exposure to changes in the exchange rate, as occurred during the commodity price boom after 2003 (when the dollar rose above parity with the US dollar) and its bust in the second half of 2008 (when the dollar quickly retreated to near US80 cents). These changes in valuations occur only on paper until investors actually sell their foreign investments and convert them back to Canadian dollars.

Turmoil in global markets began in 2007...

The turmoil in global financial markets first erupted in August 2007. The initial impact of concerns about exposure to US sub-prime mortgages was to freeze the market for asset-backed securities (ABS). As noted earlier, some of these securities were exposed to sub-prime mortgages, which were suddenly viewed as toxic by investors. Canadian investors sold a record \$10 billion of foreign short-term debt in the third quarter of 2007 (mostly the debt of foreign financial firms) and have continued to sell every quarter since.

In Canada, after three years of steady growth, the market for asset-backed commercial paper (ABCP) shrank by almost \$10 billion in the fourth quarter of 2007, and continued to contract every quarter in 2008. All of this decline was for securities financed through commercial paper backed by assets such as auto or business loans, while the market for mortgage-backed securities facilitated by the CMHC remained liquid (the part of the ABS market backed by these long-term securities was nearly three times as large as the \$116 billion short-term paper market).

The freeze in asset-backed securities had important implications for consumer credit. Consumers obtain credit from two types of institutions: chartered banks (and near banks like credit unions) and a wide range of other financial firms such as sales finance and consumer loan companies. The latter relied more heavily on commercial paper for part of their financing. When the ABCP market dried up in the fourth quarter of 2007, consumer credit loans by non-bank financial firms declined by \$3.1 billion and continued to decline in every quarter of 2008 and early 2009, according to data from the Financial Flow Accounts.

Banks offset some of this drop in consumer credit by stepping up their loans to consumers. Consumer credit from banks averaged a \$9.1 billion increase over the six quarters ending in the first quarter of 2009, up from \$6.1 billion in the previous five quarters. The cumulative acceleration in bank lending totalled \$24.0 billion, offsetting some of the \$26.6 billion slowdown in lending by non-banks (from a \$13.4 billion increase between mid-2006 and the third quarter of 2007 to an \$13.2 billion decline from the third quarter of 2007 to early 2009). As a result, the share of banks in consumer credit rose from 73% in the third quarter of 2007 to 78% by the end of 2008 (of the \$373 billion in consumer loans outstanding). Still, some consumers found their usual credit channels disrupted, fuelling the impression of a selective credit crunch even as overall credit growth was sustained by bank loans.

The seizure in credit markets also led to a sharp slowdown in the market for foreign bonds in the third quarter of 2007, especially Maple bonds. Maple bonds are bonds issued in Canadian dollars by foreigners, and for years the market had grown rapidly, reflecting financial surpluses in Canada that left investors looking for new outlets to place funds. The drying-up of this market shifted the risk of exchange rate movements back to Canadian investors, and also removed a lucrative source of profits for financial institutions that arranged the bond issues.

Meanwhile, Canadian investors repatriated funds from international financial markets for the first time in three decades. Much of the funds returning to Canada were in search of a safe haven in government securities, especially Treasury bills.

...and intensified in September 2008

The initial turmoil in financial markets in 2007 was only a prelude to its escalation in September 2008. Following the failure of the Lehman Brothers investment bank and the near failure of AIG, the crisis in the US spread in less than a week from inter-bank lending to money market funds and then a freezing-up of the market for commercial paper. Paralyzed by fear of default or non-payment, liquidity quickly disappeared in credit markets around the world.

There were several ramifications of the worsening financial turmoil late in 2008. The spread between interest rates for government and corporate debt hit a record high, as investors shunned corporate debt and put a premium on the lower risk associated with sovereign debt. Stock markets in Canada and around the world fell sharply, while the Canadian dollar posted a record quarterly decline as commodity prices fell sharply.

Financial data from the National Balance Sheet Accounts show how different sectors were affected by the financial crisis. Household net worth fell almost 7% in the second half of 2008, reflecting declines in both the stock market and housing prices. Still, this was far below the 20% drop in household net worth in the US over the past year, reflecting larger declines in both their housing and, especially, stock markets.

As noted earlier, Canadian investors repatriated funds from overseas to the perceived safe haven of Canada (investors also sold stocks in Canadian markets). With investors seeking out the security of public debt, the federal government issued over \$50 billion of new debt in the fourth quarter of 2008 to meet this demand for safe assets. Part of the increase in federal government funds raised through the issue of T-bills was deposited with the Bank of Canada, which in turn provided liquidity via loans to the banking system. Chartered banks stepped up borrowings from the Bank of Canada in the fourth quarter of 2008, symptomatic of the drop in inter-bank lending markets in Canada (which was much less marked than in the US and Europe). The other portion of the proceeds from federal borrowing was advanced to the CMHC,

which used this to purchase \$25 billion of mortgage-backed securities (through the Insured Mortgage Purchase Program), providing a further injection of liquidity into financial institutions.

Credit crunch less pronounced in Canada

The most visible feature of the global credit crisis in the autumn of 2008 was the drying-up of critical debt markets in the US, notably the inter-bank lending and commercial paper markets. Commercial paper in the US shrank by 10% (or \$15 billion) in the fourth quarter of 2008. Quarterly household credit contracted, partly due to an outright drop in lending by US-based commercial banks.

The stability of Canada's financial system ensured that credit continued to flow for most borrowers, although often at much higher prices. Despite the global credit crunch, total household borrowing (or financial liabilities) grew by 12.1% between the third quarter of 2007 and the fourth quarter of 2008, versus the freeze in household credit growth in the US (Figure 9). Mortgages grew slightly faster than consumer credit (although, as noted earlier, there was a notable shift away from non-bank sources of credit). A measure of the uncertainty felt by households was that they boosted their cash holdings ⁷ by 4.8% in the fourth quarter of 2008, the largest increase since a 16% jump at the turn of the millennium.

Non-financial private corporations showed a similar pattern as households. Short-term loans grew 7.1% from the third quarter of 2007 to the end of 2008, as a 20% increase in loans from banks offset a drop in other loans. Some of the increase in business credit could be firms activating pre-arranged lines of credit, so the actual availability of new credit could have been lower. Mortgage and bond debt rose at a double-digit rate. There was no sign of firms overall hoarding cash, as its share of financial assets was steady at 23.5% over this period.

After slowing markedly over the previous year, the real economy of output and jobs began to contract rapidly in the autumn of 2008. The main source of this weakness was a rapid decline in exports, as credit was squeezed in key markets abroad (notably in the US). As well, domestic spending declined, especially for autos and housing.

One of the puzzles of the steep economic slide late in 2008 is why household spending fell so sharply in Canada. In particular, auto sales fell 18.8% between September and December, while existing home sales tumbled 30%, versus declines of 17.5% and 13% in the US late in 2008. That sales dropped faster in Canada than the US was surprising in view of the sharper losses of jobs and wealth in the US and the more severe disruption of credit markets south of the border (although auto and home sales in the US had begun to contract earlier in the year than in Canada).

Auto and home sales early in 2009 recovered faster in Canada than in the US. Unit auto sales in March rose 8.8% from December, while existing home sales in April were 32% above their January low. In the US, both auto and home sales in April were only 2% above their lows. This suggests that shaky consumer confidence played a large role in the drop in household spending in Canada late in 2008 along with difficulties accessing credit, and both were being repaired quickly in the spring of 2009.

But these statistics may not capture all the facets of credit. They do not measure its price as measured by the effective interest rate (except for the household sector). Nor do the statistics on the supply of credit reflect potential demand: it could have been that many firms and individuals were caught off-guard by the sudden drop in global demand or wealth, and would have liked to borrow more but were not able to.

Conclusion

When the economy is functioning well, financial systems are often relegated to obscurity as they perform the mundane task of facilitating the movement of money and credit in the economy. However, the upheaval in financial markets over the past two years demonstrated the fundamental importance to the economy of well-performing and efficient financial systems. This article highlighted some of the broad array of financial data available from Canada's National Accounts, so users can more easily understand this data in the future at all stages to the business cycle.

This paper also has attempted to illustrate some of the differences between Canada and the US. In particular, the growing reliance on cheap debt in the US led to changes in investment and savings patterns that ultimately proved unsound for both their financial and economic systems. By contrast, Canada avoided many of these changes in behaviour seen in the US. While Canada obviously was affected by the fall-out from the severe drop in international trade and commodity prices in recent months, its avoidance of excessive reliance on debt has stood both its financial institutions and overall economy in good stead.

This paper does not imply that the financial crisis could have been anticipated by analyzing financial data from the National Accounts. The best example was the unforeseen failure of Lehman Brothers and the completely unexpected impact this had on a money market fund going below par. [8](#) But the broad contours of the behaviour of the financial system were shaped by attitudes to debt and risk in recent years, some of which can be illuminated by the financial data. The data also show in detail how the flow of funds in Canada and for Canadian investors abroad was altered by the unfolding turmoil in financial markets.



Notes

1. See Michael Palumbo and Jonathan Parker, "The Integrated Financial and Real System of National Accounts for the United States: Does it Presage the Financial Crisis?" NBER Working Paper 14663, January 2009. Also in the American Economic Review, May 2009.
2. For a discussion, see Richard Rosen, "The role of securitization in mortgage lending." Chicago Fed Letter, November 2007, No. 244. One estimate found 80% of US subprime mortgages were securitised: Gary Gorton, "Information, Liquidity, and the (Ongoing) Panic of 2007." American Economic Review, May 2009, Vol. 99, No. 2, P. 567.
3. See "Don't blame Canada." P. 7 of A Special Report on International Banking in The Economist, May 16, 2009.
4. See Bruce Little, "Fixing the Future". University of Toronto Press, 2008. He estimates the split between higher contributions and reduced benefits at three to one in reforming the plans finances in 1998 (p. 258).
5. P. 3.9, P. Cross "2008 in Review." Canadian Economic Observer, April 2009.
6. See Palumbo and Parker, p. 8: "a large inflow of foreign (financial) capital provided the lion's of net lending".
7. Cash includes currency and deposits in Canadian financial institutions.
8. This in turn caused money market funds to withdraw their traditional funding of commercial paper. The unfolding of the crisis is summarized by Ben Bernanke, "The Crisis and the Policy Response." At the Stamp Lecture, London School of Economics, January 13, 2009.



Chart 3.1
Sectoral debt as a share of GDP

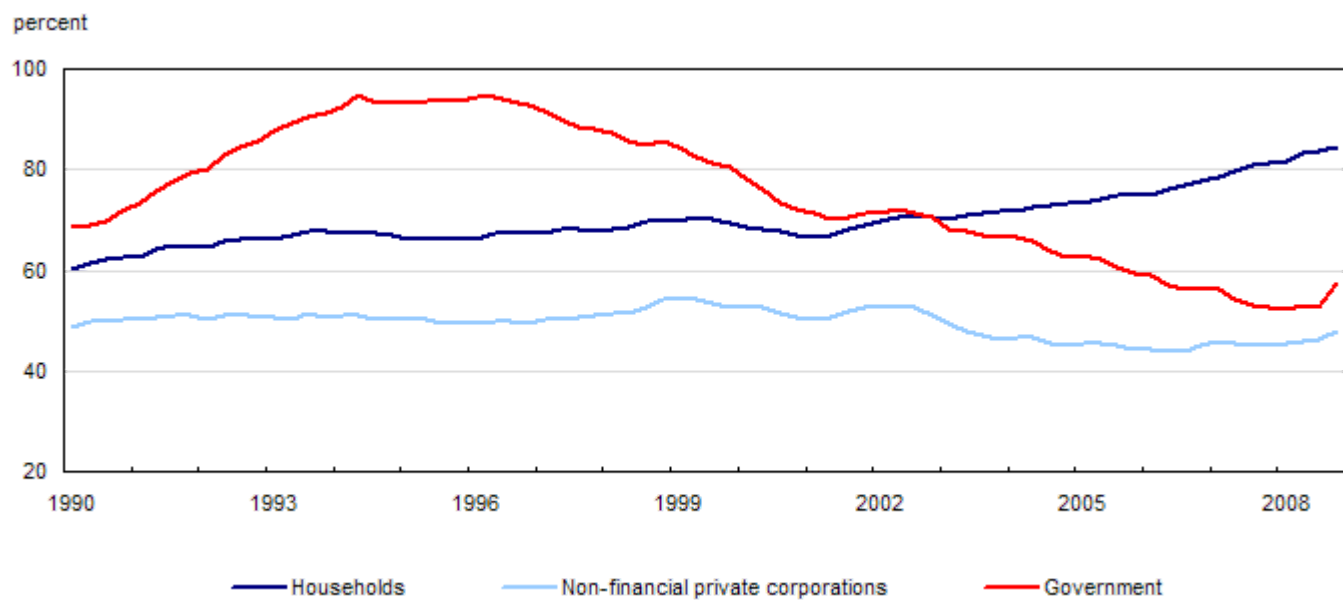




Chart 3.2

Securitized mortgages share of total mortgages

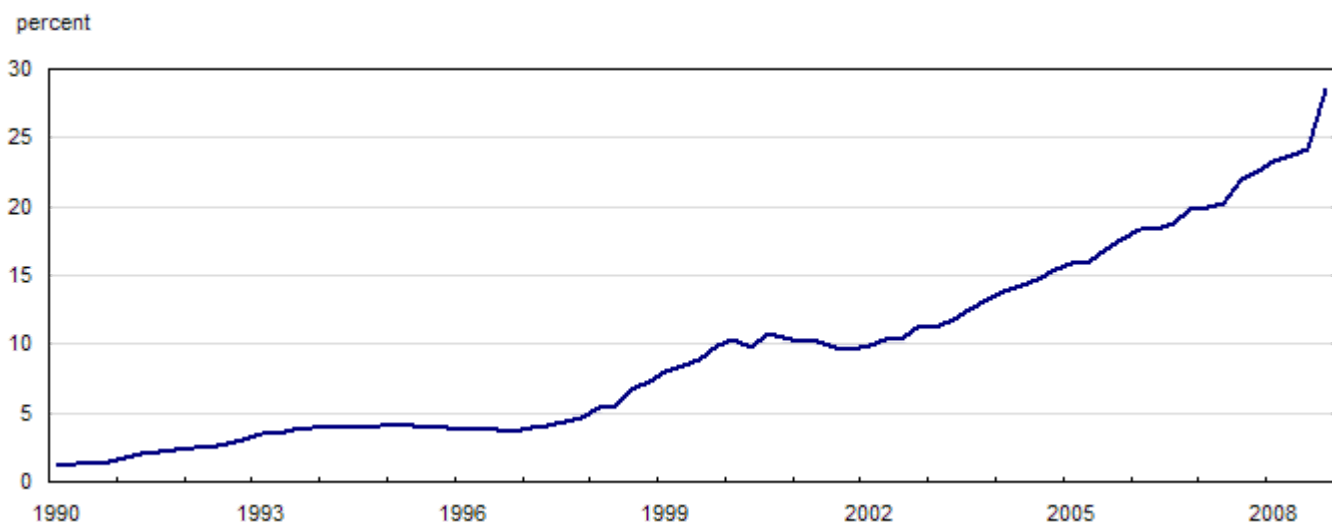




Chart 3.3

Government debt as a share of GDP

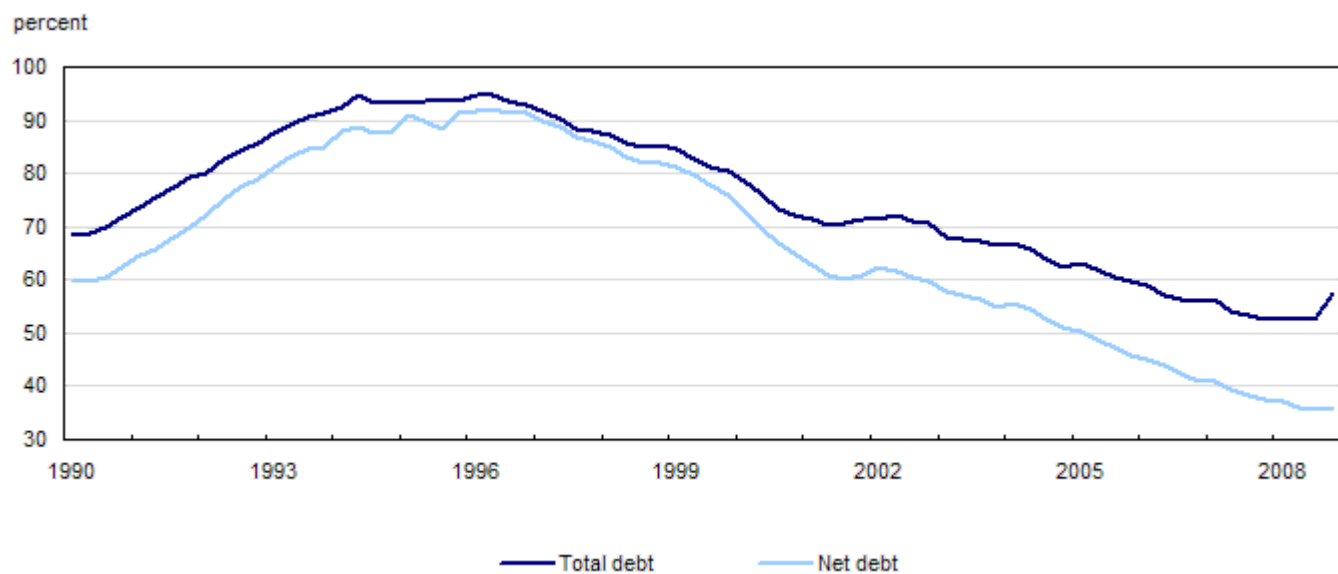
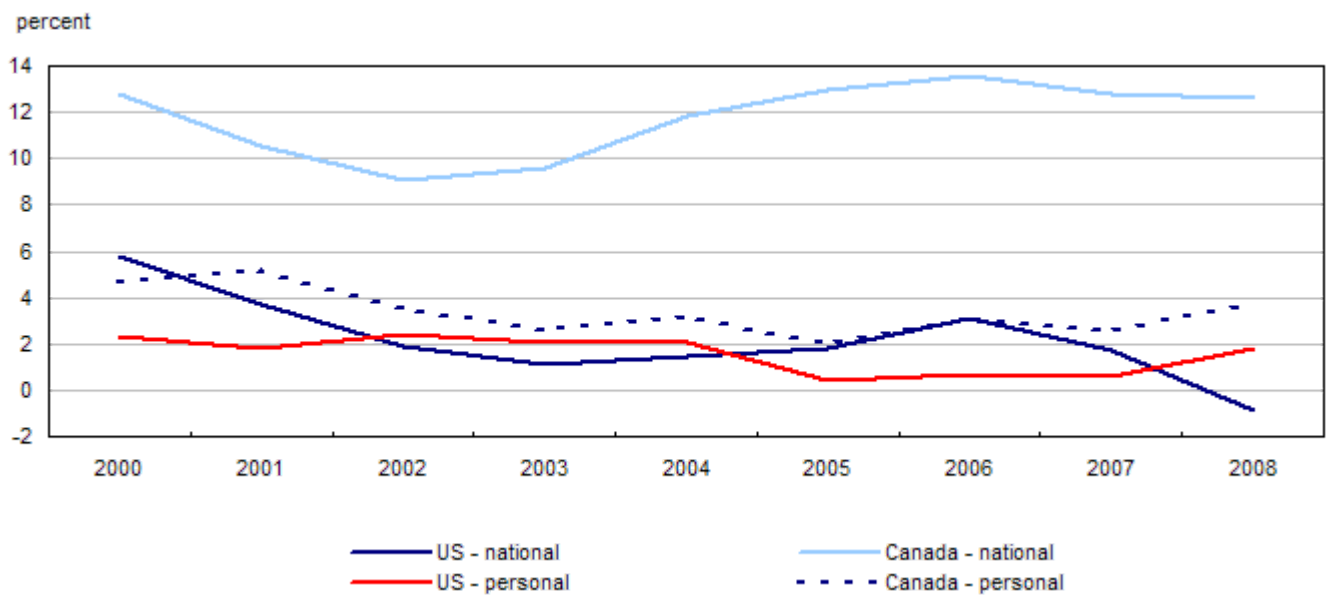




Chart 3.4 Saving rates¹ - Canada and US



1. National savings is a percent of gross national income; personal savings is a percent of personal disposable incomes.



Chart 3.5 Household debt ratios

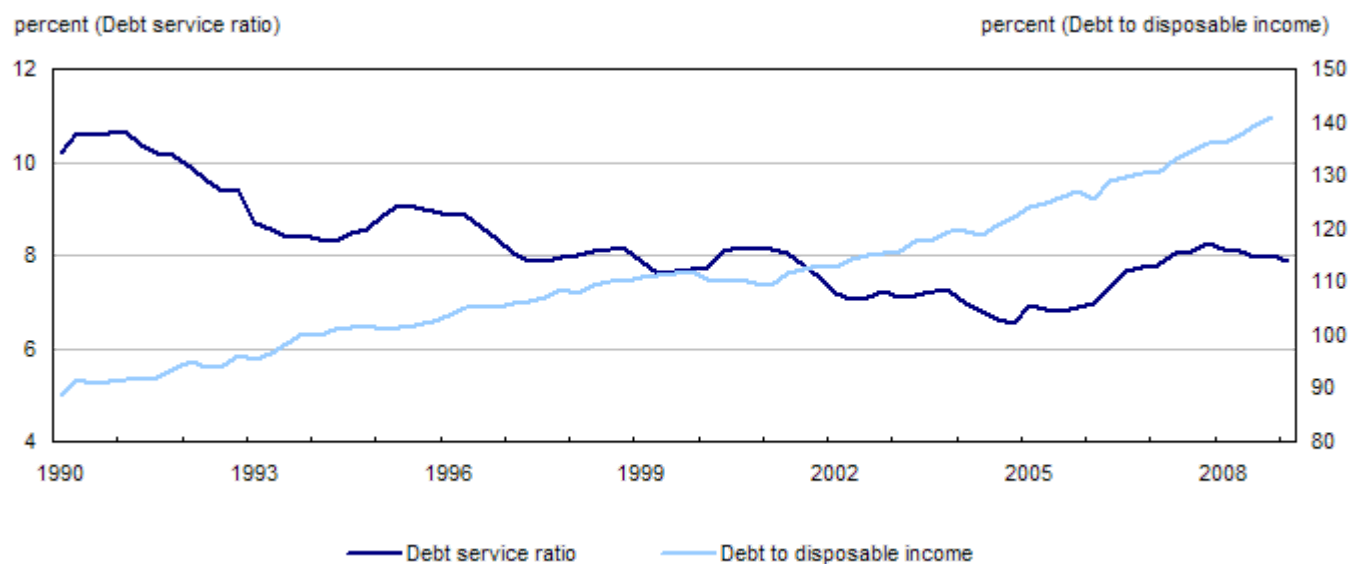




Chart 3.6

Net new issues of asset-backed commercial paper

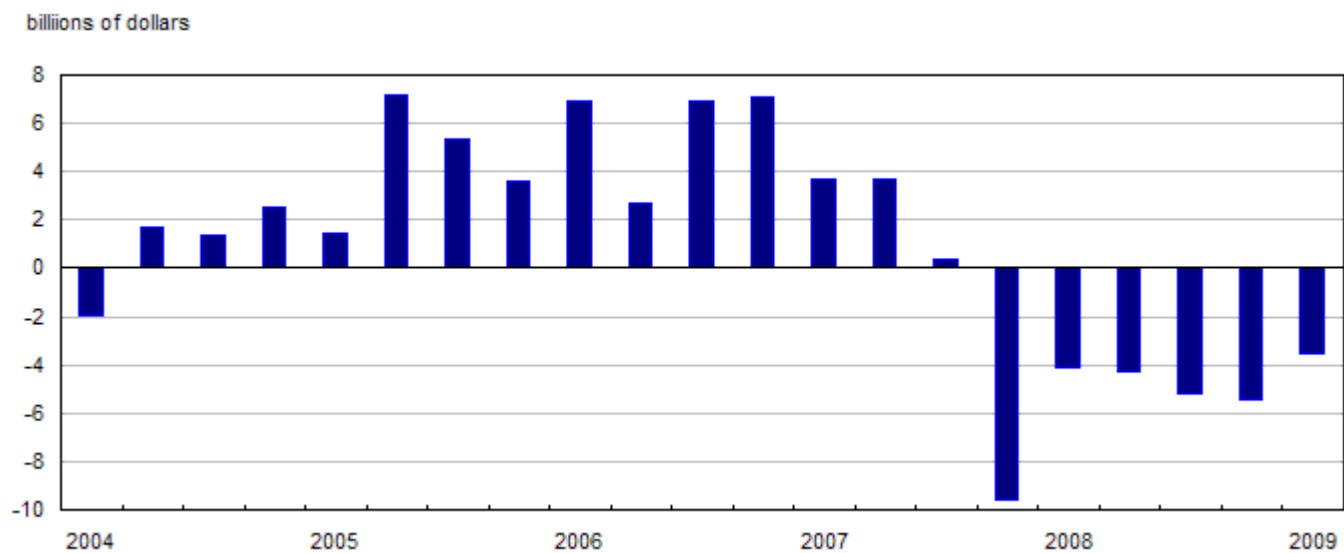




Chart 3.7 Consumer credit flows

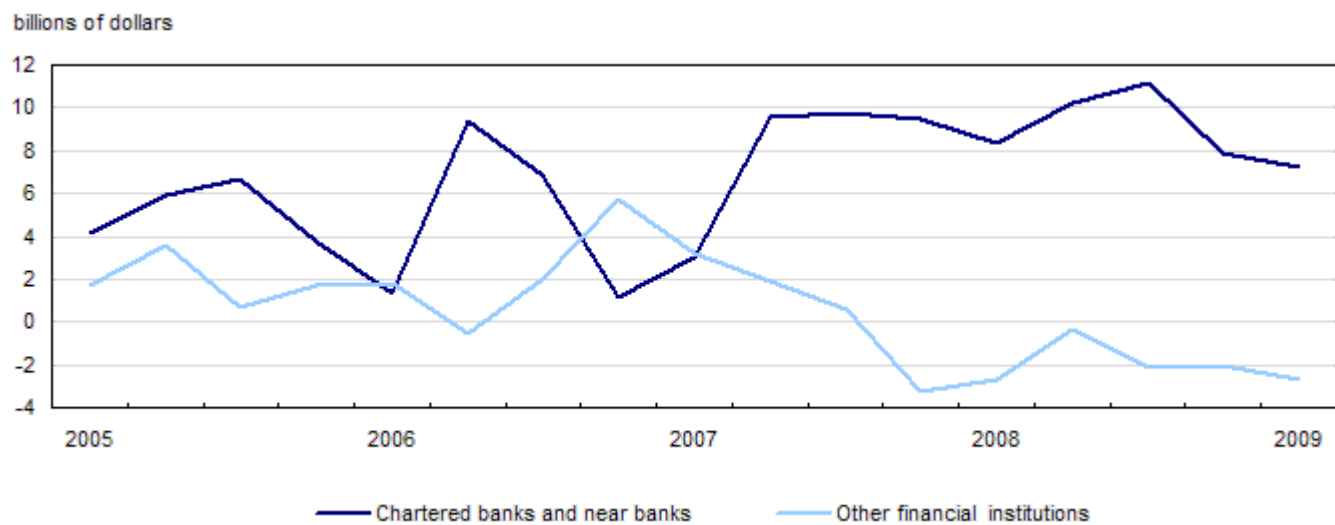




Chart 3.8

Canadian portfolio investment in foreign bonds

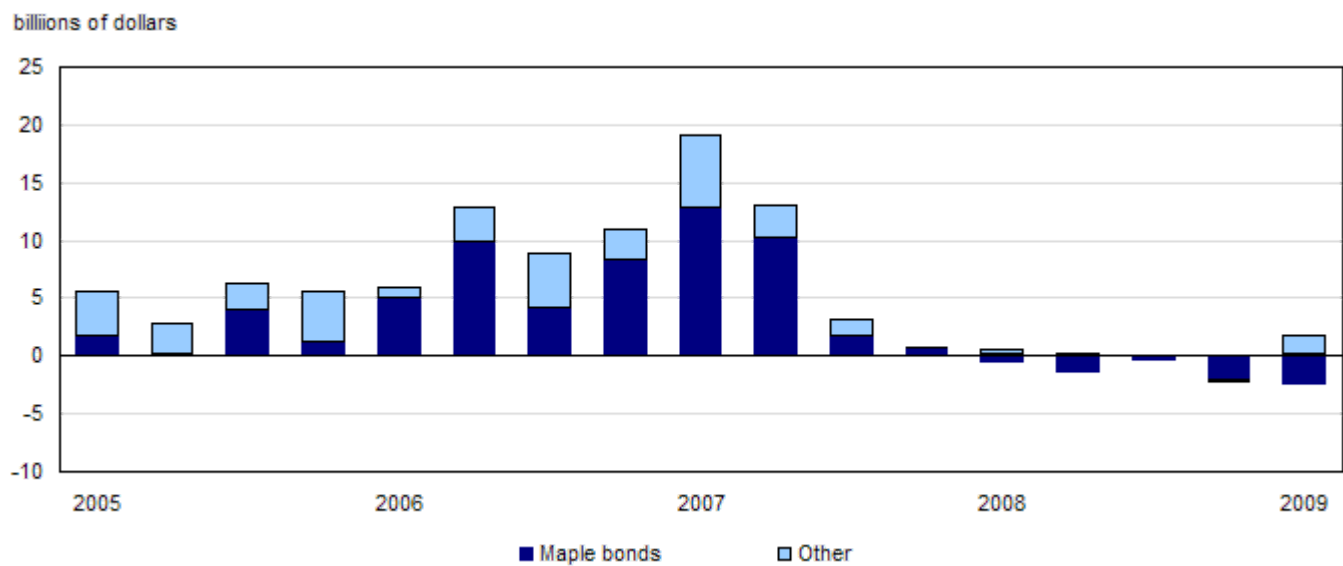




Chart 3.9 Total household borrowing

